

Two New Species of the Genus *Foetorepus* (Callionymidae) from the Emperor Seamounts, North-central Pacific

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Abstract Two new dragonets, *Foetorepus kinmeiensis* and *Foetorepus kanmuensis*, are described from Kinmei and Kanmu Seamounts of the Emperor Seamount Chain in the North-central Pacific. Both species are red in ground color, but they can be separated from each other by color pattern, shape of the preopercular spine, thickness of pelvic fin rays, and length of the first dorsal fin ray in males.

Two new species of the family Callionymidae were taken at depths of 350~498 m from near the tops of the Kinmei and Kanmu Seamounts, Emperor Seamount Chain in the North Pacific. The two species were captured in the same trawl haul at the Kanmu Seamount, and it is interesting that these two closely related species occur on one small seamount far from the continent. They agree well with the genus *Foetorepus* Whitley, which was redescribed by Nakabo (1982). The two species are described and figured below.

Counts and proportional measurements are shown in Table 1. Methods of counts and measurements follow Nakabo (1982).

Foetorepus kinmeiensis sp. nov. (Figs. 1, 2)

Foetorepus sp. 1: Nakabo, 1982: 79.

Holotype. HUMZ (Laboratory of Marine Zoology, Faculty of Fisheries, Hokkaido University) 68699, a male, 105.5 mm in standard length, 35°20.2'N, 171°24.1'E, Kinmei Seamount, at 350 m deep, July 30, 1977.

Paratype. FAKU (Department of Fisheries, Faculty of Agriculture, Kyoto University) 50670, a female, 130.3 mm, 32°00'N, 172°50'E, Kanmu Seamount, at 355~375 m deep, May 8, 1980.

Diagnosis. First dorsal spine not filamentous, the third membrane of first dorsal fin with a large dark mark. Posterior tip of preopercular spine straight and not curved upward. Lower half of caudal fin rays elongate and filamentous in male.

Description of holotype (male). Body elongate

and slightly depressed. Head slightly depressed. Eye large, 2.9 in head length. Interorbital space narrow and concave. Gill-opening small, oval, placed just behind midpoint between posterior end of eye and upper origin of pectoral fin. Preopercular spine without an antrorse process at base and with an upward process on inner side; its posterior tip straight and not curved upward. Upper jaw protractile; its posterior end reaching anterior edge of eye. A nostril without tube on each side of preorbital region. Teeth on jaws villiform in broad bands. Palatine and vomer toothless. Anal papilla conical. Infraorbital canal without branch, reaching posteroventral edge of eye. Postocular commissure connected to preoperculo-mandibular canal. Lateral line single, with very short branches upward or downward on posterior half, reaching base of caudal fin; the line on opposite side interconnected by a transverse branch across occiput, but not on dorsal surface of caudal peduncle.

First dorsal fin not large, beginning before upper origin of pectoral fin; dorsal spines neither elongate nor filamentous. Dorsal rays branched distally except posterior branch of last ray divided at base; 1st ray somewhat longer than 2nd one. Anal rays unbranched distally; last ray divided at base; length of rays increasing posteriorly. Pectoral fin rounded, reaching 5th dorsal ray. Pelvic fin rounded, reaching 1st anal ray, and connected by membrane to middle part of pectoral fin base. Caudal fin rounded; lower 4 rays elongate and filamentous.

Color in life. Upper part of body red with three broad transverse deep red bands; the

anteriormost around first dorsal fin, the middle below second dorsal fin and the posteriormost on caudal peduncle. Lower part of body white. First dorsal fin red with a large dark mark between 3rd and 4th dorsal spines. Second dorsal fin with many undulating oblong yellow and white lines. Upper half of pectoral fin with some transverse yellow lines. Pelvic fin pinkish white. Anal fin pinkish white with reddish distal margin. Caudal fin with many undulating transverse yellow and white lines.

Color in 40% isopropyl alcohol. Body creamy white with marbled brown above. A dark mark on first dorsal fin.

Description of paratype (female). Eye large, 2.8 in head length. Anal papilla conical,

shorter than that of the holotype (male). Dorsal rays almost the same in length. Pectoral fin reaching 4th dorsal ray. Pelvic fin shorter than that of the holotype (male) and not reaching 1st anal ray. Caudal ray neither elongate nor filamentous. Color in 10% formalin and other characters agree well with those of the holotype.

Remarks. *Foetorepus kinmeiensis* is easily distinguished from *Foetorepus kanmuensis* in the following points: 1) dorsal surface of body darker, 2) first dorsal fin with a large dark mark, 3) posterior tip of preopercular spine not curved upward, 4) eye somewhat smaller, 5) tips of pelvic fin rays not thick, and 6) first dorsal ray elongate in male

Foetorepus kinmeiensis is closely related to *F.*

Table 1. Counts and proportional measurements as the percent of standard length in *Foetorepus kinmeiensis* and *Foetorepus kanmuensis*.

Character	<i>F. kinmeiensis</i>		<i>F. kanmuensis</i>		
	Holotype	Paratype	Holotype	Paratypes	
	HUMZ 68699	FAKU 50670	FAKU 50671	NSMT-P 21033	FAKU 50672
Sex	male	female	male	male	female
Standard length (mm)	105.5	130.3	141.9	129.5	121.1
Dorsal fin rays	IV, 8	IV, 8	IV, 8	IV, 8	IV, 8
Pectoral fin rays	i+20	i+18	i+18	i+20	i+19
Pelvic fin rays	I, 5	I, 5	I, 5	I, 5	I, 5
Anal fin rays	7	7	7	7	7
Caudal fin rays	i+7+ii	i+7+ii	i+7+ii	—	i+7+ii
Vertebrae	7+14	7+14	7+14	7+14	7+14
Body width	21.9	21.1	19.8	19.6	22.5
Body depth	15.5	15.3	14.4	15.6	16.2
Caudal peduncle depth	5.3	5.8	6.1	6.2	6.1
Predorsal length	28.5	29.1	29.0	29.4	30.1
Caudal fin length	50.8	30.0	41.9	—	31.5
Head length	28.3	27.9	27.8	28.3	29.7
Eye diameter	9.8	9.9	11.3	10.7	12.1
Snout length	8.9	9.0	8.6	9.6	8.4
Upper jaw length	8.2	7.8	8.6	7.5	8.1
Interorbital width	1.9	1.1	1.4	1.2	1.5
1st dorsal spine length	20.1	18.7	20.6	22.1	25.0
2nd dorsal spine length	17.2	16.7	15.2	17.0	20.4
3rd dorsal spine length	15.3	14.3	13.6	14.0	12.1
4th dorsal spine length	11.1	8.9	10.9	14.0	8.3
1st dorsal ray length	28.7	20.2	19.5	20.4	18.7
Last dorsal ray length	28.6	20.3	21.4	27.0	19.5
1st anal ray length	9.2	9.6	8.0	9.8	8.5
Last anal ray length	23.2	16.4	17.3	18.6	17.0
Pectoral fin length	27.2	22.5	23.3	24.3	21.6
Pelvic fin length	30.1	27.6	26.5	26.9	25.9
Anal papilla length.	1.9	0.9	2.0	2.3	—

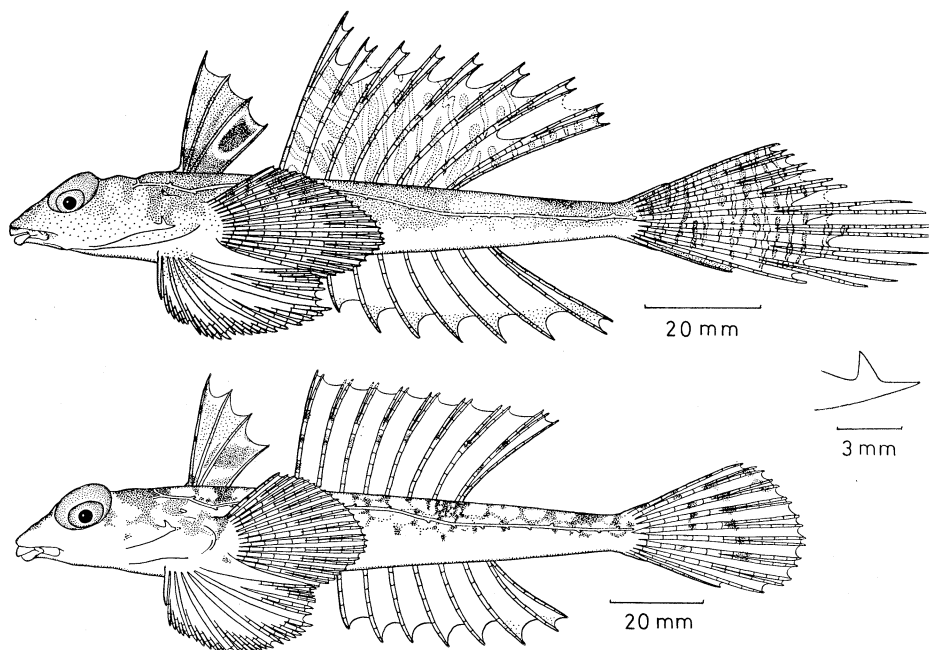


Fig. 1. *Foetorepus kinmeiensis* sp. nov. Top: Lateral view of a male, holotype, HUMZ 68699. Middle right: Left preopercular spine of the holotype. Bottom: Lateral view of a female, paratype, FAKU 50670.

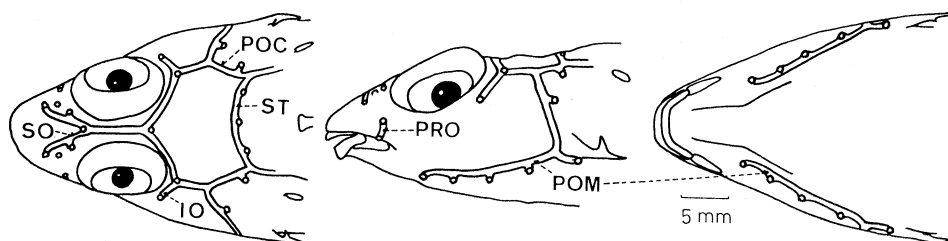


Fig. 2. Cephalic lateral line of *Foetorepus kinmeiensis*. Left: Dorsal view. Middle: Lateral view. Right: Ventral view. IO, infraorbital canal; POC, postocular commissure; POM, preoperculo-mandibular canal; PRO, preorbital canal; SO, supraorbital canal; ST, supratemporal canal.

altivelis (Temminck et Schlegel) from the waters of Japan and the East China Sea in the male's elongate first dorsal ray and filamentous caudal rays, but differs from it in the short first dorsal spine and the colorations of the male's second dorsal and caudal fins.

Foetorepus kinmeiensis is similar to the species from the Hawaiian Islands mistakenly identified as *F. altivelis* (Temminck et Schlegel) by Fricke (1981) in the color of the first dorsal fin and the shape of the preopercular spine, but differs from it in having filamentous caudal fin rays in the

male and no darker mark on the anal fin in the female.

The specific name, *kinmeiensis*, refers to the Kinmei Seamount where the holotype was collected.

***Foetorepus kanmuensis* sp. nov.**
(Fig. 3)

Calliurichthys calanroponus (typographical error as *Calliurichthys calauropomus*, not of Richardson): Chen, 1980: pl. 6, fig. 27.

Holotype. FAKU 50671, a male, 141.9 mm

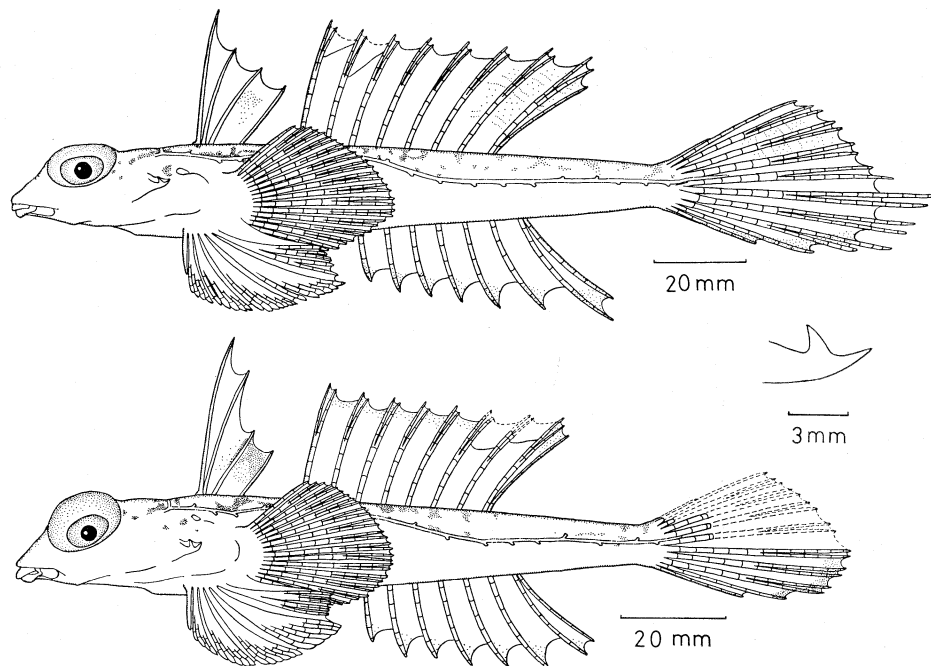


Fig. 3. *Foetorepus kanmuensis* sp. nov. Top: Lateral view of a male, holotype, FAKU 50671. Middle right: Left preopercular spine of the holotype. Bottom: Lateral view of a female, paratype, FAKU 50672.

in standard length, 32°00'N, 172°50'E, Kanmu Seamount, at 355~375 m deep, May 8, 1980.

Paratypes. FAKU 50672 (the specimen shown in Chen, 1980: pl. 6), a female, 121.1 mm, 32°00'N, 172°50'E, Kanmu Seamount, at 365~498 m deep, May 6, 1980. NSMT-P (National Science Museum, Tokyo) 21033, a male, 129.5 mm, same collecting data as for the holotype.

Diagnosis. Eye very large (2.5~2.6 in head length). First dorsal spine not filamentous. First dorsal ray not elongate in the male. Posterior tip of preopercular spine strongly curved upward. Tips of pelvic fin rays thick. Body nearly creamy white, with less distinct marbled brown marks in preserved specimens. First dorsal fin almost transparent in preserved specimens.

Description of holotype (male). Body elongate and slightly depressed. Head slightly depressed. Eye very large, 2.5 in head length. Inter-orbital space narrow and concave. Gill-opening small, oval, placed just behind midpoint between posterior end of eye and upper origin of pectoral fin. Preopercular spine without an antrorse

process at base and with an upward process on inner side; its posterior tip strongly curved upward. Upper jaw protractile; its posterior end reaching past anterior edge of eye. A nostril without tube on each side of preorbital region. Teeth on jaws villiform in broad bands. Palatine and vomer toothless. Anal papilla conical. Cephalic lateral line the same as in *F. kinmeiensis*; infraorbital canal without branch, reaching posteroventral edge of eye; postocular commissure connected to preoperculomandibular canal (Fig. 2). Lateral line single, with very short branches upward or downward on posterior half, reaching base of caudal fin, the line on opposite side interconnected by a transverse branch across occiput, but not on dorsal surface of caudal peduncle.

First dorsal fin somewhat smaller than in the female (one of the paratypes), beginning before upper origin of pectoral fin; dorsal spines neither elongate nor filamentous. Dorsal rays branched distally except posterior branch of last ray divided at base; length of rays almost the same. Anal rays unbranched distally, last divided at base; length of rays increasing posteriorly. Pectoral

fin rounded, reaching 4th dorsal ray. Pelvic fin rounded, not reaching 1st anal ray, and connected by membrane to middle part of pectoral fin base. Caudal fin rounded; lower 3 rays elongate and somewhat filamentous.

Color in 10% formalin. Body nearly creamy white, with less distinct marbled brown marks above. Third membrane of first dorsal fin slightly dark. Both pectoral and pelvic fins transparent. Distal margin of anal fin slightly dark. Lowermost margin of caudal fin slightly dark.

Description of paratypes (a male and a female). Eye very large, 2.5~2.6 in head length in both sexes. Other characters and color pattern of the male specimen agree well with the holotype.

Female specimen. First dorsal fin somewhat larger than that of male specimens. Caudal rays neither elongate nor filamentous.

Color in life (female paratype from pl. 6, fig. 27 of Chen, 1980). Upper part of body red with three broad transverse deep red bands; the anteriormost around head, the middle below second dorsal fin and the posteriormost on caudal peduncle. Lower part of body white. First dorsal fin reddish-yellow with an oblique white band near base. Second dorsal fin yellow with red distal margin; each membrane with a white mark on anteroventral part. Upper half of pectoral fin with two red bands. Pelvic fin faint reddish-yellow. Anal fin faint pinkish white. Caudal fin with three transverse yellow bands, and its distal margin red.

Other characters and color pattern of the female agree well with the holotype (male).

Remarks. *Foetorepus kanmuensis* is very similar to *F. delandi* (Fowler) from the Philippines in having an almost transparent first dorsal fin, strongly curved posterior tip of preopercular spine and large eye, but differs from it in having very short upward and downward branches on the posterior half of the lateral line, the first dorsal ray of males not elongate and lower three caudal rays elongate and filamentous distally in the male.

Compared with other callionymid species, *F. kanmuensis* is remarkable in that the female's first dorsal fin is higher than the male's. There is only one example in which the female has a larger unpaired fin than the male; Alcock (1899) reported that the female of *Bathycallionymus*

carebares (Alcock) has a longer caudal fin than the male. However, we cannot decide whether this character of *F. kanmuensis* is due to an abnormality or to an attribute of the species, because only one female has been found.

The specific name, *kanmuensis*, refers to the Kanmu Seamount where the holotype was collected.

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中部北太平洋天皇海山群から得られたネズボ科ベニテグリ属魚類の2新種

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中部北太平洋天皇海山群のキンメイ・カンム両海山から、ネズボ科ベニテグリ属魚類の2新種, *Foetorepus kinmeiensis* (新称: キンメイベニテグリ), *Foetorepus kanmuensis* (新称: カンムベニテグリ) を記載した。

これらの2種は生鮮時には赤い体色を持ち、背鰭第1棘も糸状に伸びていず、また尾鰭下半分に位置する軟条が糸状に伸びているなどで、一見したところ非常

によく似ているが、いくつかの形態的特徴で区別しうる。

F. kinmeiensis は、1) 体色は白色(液浸標本)で背側に大理石様の褐色斑がある、2) 背鰭第3棘と第4棘の間に一褐色斑がある、3) 前鰓蓋骨棘の後端はまっすぐである、などの特徴がある。

F. kanmuensis は、1) 体色は白色(液浸標本)で背側の大理石様の褐色斑は少なく、うすい、2) 第1背鰭には、はっきりした褐色斑がない、3) 眼が非常に大きい、4) 前鰓蓋骨棘の後端は上方に強くまがる、5) 腹鰭軟条の先端はやや肥厚する、などの特徴がある。

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